

## CLAIMS

1. A gas engine electric power generating system characterized in that an electric power generating apparatus composed of an electric power generator connected with a gas engine, the gas engine being of a pilot fuel oil ignition type, is installed near a coal mine and recovered methane gas and ventilated methane gas taken out of coal seams and mine shafts are introduced into a cylinder of the gas engine while being adjusted to be introduced as a lean methane/air mixture to operate the engine to produce electric power.
2. The gas engine electric power generating system according to claim 1 characterized in that said gas engine is operated while coping with the variation of methane concentration of said mixture by means of a combustion diagnosis apparatus which enables the occurrence of knock and misfire in the combustion chamber to be evaded through comparing maximum pressure ratio  $P_p/P_0$  with pressure ratios predetermined stepwise for each category of diagnosis (threshold pressure ratio),  $P_p$  being the maximum cylinder pressure in a cycle,  $P_0$  being the compression pressure at one or a plurality of predetermined crank angles in the compression stroke.
3. The gas engine electric power generating system according to claim 1 characterized in that; said system is established near a coal mine in developing country including China, the carbon dioxide emission credit produced by the difference in greenhouse effect index (this term is to be identical to "global warming potential") between the case where coal mine methane gas

is released to the atmosphere and where said methane gas is utilized by the gas engine electric power generating system to be released to the atmosphere as carbon dioxide, is registered on a emission credit market to be traded with credit surcharge payment obligators (or those who want to purchase the emission credit).

4. An affiliated system characterized in that a plurality of the system according to claim 3 are established near other nearby coal mines and electric power production required for the affiliated system can be secured even in case disaster or trouble occurs at some of the mines.
5. An affiliated system of mutual patronage relation constituted by one or a plurality of the systems according to claim 3 and nearby power generating system or systems using coal bed methane or pre-mining gas as fuel.